GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER– VI EXAMINATION – SUMMER 2020

Subject Code: 2160608   **Date:04/11/2020**

Subject Name: URBAN TRANSPORTATION SYSTEM

Time: 10:30 AM TO 01:00 PM   **Total Marks: 70**

Instructions:
1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

			MARKS

Q.1	(a)	Draw a flow chart and explain various steps involved in transportation planning process.	03
	(b)	What is the role of transportation in society? Explain contribution of transport sector for economic growth of a country.	04
	(c)	What are the applications of O-D survey data. Enlist different methods of conducting O.D survey and explain any one in detail stating its advantages and disadvantages.	07
Q.2	(a)	Explain urbanization trends with pull and push phenomenon.	03
	(b)	How to define study area for urban transportation planning? What factors should be given due weightage in the selection of external cordon?	04
	(c)	What are the factors affecting travel demand? Explain significance of each factor in increase or decrease of travel demand.	07

OR

	(c)	Classify mass transit systems. What is BRTS system? Write advantages and disadvantages of BRTS system?	07

Q.3	(a)	What are the survey data checks? Explain accuracy check in detail.	03
	(b)	Explain about zoning. How you do network identification and coding for zone formation?	04
	(c)	Explain the terms i) Dependent variable ii) Independent variable iii) coefficient of correlation. Explain multiple linear regression analysis showing its applications in transportation engineering. What are the assumptions made while developing multiple linear regression technique?	07

OR

Q.3	(a)	Explain merits and demerits of urbanization	03
	(b)	Which are the factors governing trip generation and trip attraction rate, explain all the factors in detail	04
	(c)	The table shows data for vehicle trips per day, as related to number of person in house hold. Develop the linear regression equations for trip generation and apply necessary check. How many trips are generated from a household if household size is nine?	07

Average household size	Average total trips/ Day
2	5
3	7
4	8
5	10
6	10

Q.4 **(a)** Differentiate long term and short term transport planning strategies. **03**

(b) What is sampling? Discuss various type of samplings **04**

(c) Which are the popular models used for trip distribution. Explain standard gravity model with its advantages and disadvantages. **07**

OR

Q.4 **(a)** What are the features of boom towns, explain boom town with a view point of travel demand analysis. **03**

(b) Explain the following Terms. i) Interzonal trip ii) Intrazonal trip **04**

(c) Write a short note on all or nothing method of route assignment. **07**

Q.5 **(a)** Explain modal split. Give factors affecting modal split. **03**

(b) Explain with example, how para-transit transport system can be effectively utilized to support mass transit system. **04**

(c) The utility function developed considering travel time as responsible variable for travel mode choice is $u_x = 0.86 - 0.08$ (ttcar- ttbus). The probability of choosing car as per logit model is $P_c = 1/(1+e^{-u_x})$. The total trip exchange between zones and travel time by bus and car is as shown in table below. Determine two way volume in cars/day on the road AB and BC if average car occupancy is 2.5. **07**

From	To	Person trips/day	Travel time Car (ttcar) in min	Travel time bus (ttbus) in min
A	B	1600	20	25
B	C	700	10	15
A	C	800	30	40

OR

Q.5 **(a)** Explain following terms i) CBD area ii) Captive transit riders iii) Land use **03**

(b) What is corridor identification? Discuss corridor screen line analysis and explain its importance. **04**

(c) Explain capacity restrain method of route assignment with suitable example and state its advantages and disadvantages. **07**

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